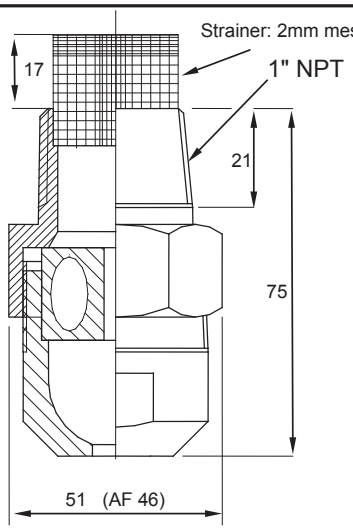
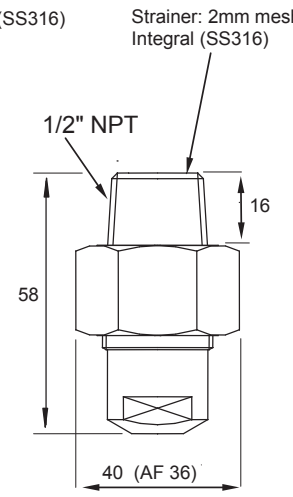
HIGH VELOCITY
WATER SPRAY NOZZLE

Standard Nozzle Range							
Type	**Picture No.**	**K–Factor (Metric)** Tol. ± 5%	**K–Factor (US)** Tol. ± 5%	**Thread (Male)**	**Spray Angle**	**Approval**	**Strainer**
C	2	26	1.81	1/2" NPT	80°	FM APPROVED	Yes (integral)
L	1	40	2.77	1" NPT	55°	FM APPROVED	No (optional)
D	1	49	3.41	1" NPT	65°	FM APPROVED	No (optional)
E	1	65	4.52	1" NPT	80°	FM APPROVED	No (optional)
F	1	89	6.15	1" NPT	85°	FM APPROVED	No (optional)
G	1	104	7.17	1" NPT	90°	FM APPROVED	No (optional)
WM	3	21	1.46	1" NPT	115°	FM APPROVED	Yes (integral)
WL	3	26	1.81	1" NPT	115°	FM APPROVED	Yes (integral)
WD	3	47	3.27	1" NPT	120°	FM APPROVED	No (optional)
WE	3	57	3.97	1" NPT	125°	FM APPROVED	No (optional)
WF	3	78	5.43	1" NPT	115°	FM APPROVED	No (optional)

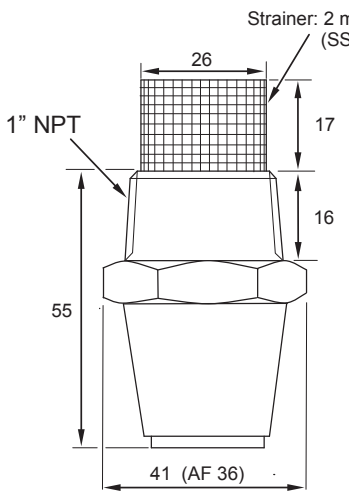
Recommended working pressure		
Min.	3,5 bar	51 PSI
Max.	5,0 bar	73 PSI



Type: L, D, E, F, G



Type: C



Type: WM, WL, WD, WE WF

All dimensions in mm.
Inches = mm / 25,4

Not to scale.

Weight (brass)

L,D,E,F,G : 440 g
C : 235 g
WM : 232 g

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GENERAL DESCRIPTION
The GW Fyrhed high velocity nozzle is designed for directional spray applications in fixed water spray (deluge) systems.
The GW Fyrhed nozzle produces a soild, uniform and highly robust cone of high velocity water spray, generated as the pressurized water passes through the internal swirl plate, rotating/spinning the water jet as it exits the nozzle orifice.
The GW Fyrhed nozzle is available in a variety of K-factors and materials (see page 4), to meet most land based and off-shore design application requirements. Also available with protective plating – e.g. ENP (electroless nickel plating). Consult GW Sprinkler for available options.
The GW Fyrhed nozzle is effective in covering exposed vertical, horizontal and irregular shaped surfaces in a cooling water spray to prevent excessive absorption of heat from an external fire, protecting e.g. structural steel constructions from damage and preventing potential collapse.
Typical applications are special hazards, such as:

- oil filled transformers
- circuit breakers / switch gear
- diesel engines
- storage tanks
- flammable liquid storage areas/buildings
- conveyor systems
- petroleum and chemical processing equipment
- lube oil systems
- oil fire boilers
- air craft carriers

In some applications the GW Fyrhed nozzle may also be used for fire control and extinguishment of oil fires, as the high velocity spray can penetrate the fire plume and reach the surface of the burning media with high impact energy – thus effectively controlling/extinguishing the fire by the effects of emulsification, cooling and smothering.

STRAINER
In compliance with FM requirements all GW Fyrhed nozzles are fitted with an integral inlet strainer to protect internal waterways smaller than Ø5mm diameter from clogging.

SYSTEM DESIGN AND INSTALLATION
The GW Fyrhed nozzle is designed to be installed in accordance with recognized installation standards, e.g. the latest published standards of NFPA, FM Global, LPCB, VdS or similar organisations. If in doubt – consult the AHJ (Authority Having Jurisdiction) prior to system design and installation.
The system design of water spray fixed systems should only be performed by experienced designers who thoroughly understand the capabilities and limitations of such systems and their individual components. Deviations from the standards – or any alteration to the nozzle after it leaves the factory including, but not limited to: painting, plating, coating, or modification may render the product inoperative and will automatically nullify the approval and any guarantee made by GW Sprinkler A/S.

Handle the GW Fyrhed nozzle with care, and store it dry in its original shipping container.
Before installation, make sure that appropriate nozzle model and style, with correct K-factor, spray angle and material is selected for the job.
Never install a water spray nozzle that has been dropped or damaged.
Never re-install previously installed nozzles if damaged in any way during dismantling.
Corrosion resistant nozzles must be installed when subject to corrosive atmospheres.
Nozzles must be installed after the piping is in place, to prevent mechanical damage.

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- Apply a small amount of pipe joint compound or tape to the external threads of the nozzle, taking care not to allow a build-up of compound on the strainer or inside the inlet.
- Hand-tighten the nozzle into the fitting.
- Use a suitable wrench to finally install and tighten the nozzle, applying a min. to max. torque of 9,5 to 19Nm (1/2" thread) or 26 to 40Nm (1" thread) for a leak tight joint. Higher levels of torque can distort the nozzle inlet with consequent impairment of the nozzle.

INSPECTION, TEST AND MAINTENANCE

The owner is responsible for maintaining the fire protection system in proper operating condition. For minimum maintenance and inspection requirements, refer to relevant standards – e.g. NFPA 25, that describes maintenance and inspection of sprinkler / water spray systems. In addition the AHJ may have additional maintenance, testing and inspection requirements that must be followed.

- Spray nozzles must be inspected on a regular basis for corrosion, mechanical damage, obstructions (plugging of water way), paint, etc. The frequency of inspections may vary due to corrosive atmospheres, water supplies and activity around the nozzles.

- Spray nozzles that have been painted or mechanically damaged must be replaced immediately. Nozzles showing signs of corrosion shall be tested for proper operation, and/or replaced immediately as required.

- Care must be taken to ensure that the replacement nozzle has the proper model, style and K-factor. A cabinet should be provided and stocked with a suitable wrench and extra spray nozzles of each variety used for replacement purposes.

- The spray nozzle discharge pattern is critical for proper fire protection. Hence, nothing should be hung from, attached to, or otherwise obstruct the discharge pattern. All obstructions must be immediately removed or, if necessary, additional nozzles installed.

- Fire protection systems that have been subject to a fire must be returned to service as soon as possible. The entire system must be inspected for damage and repaired or replaced as necessary. Spray nozzles that have been exposed to corrosive products of combustion or high ambient temperatures, should be replaced.

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Materials

Material options	**Grade** (or equivalent)
Brass	DZR / CW602N / UNS C35330
Nickel Aluminium Bronze	CW307G / UNS C63000
Stainless Steel, SS136	AISI 316 / EN 1.4401 / UNS S31600
Stainless Steel, SMO	EN 1.4547 / UNS S31254 / 254SMO
Titanium	ASTM B367 Gr. C2 / UNS R50400

Certification: 3.1 cert. to EN 10204 and/or Positive Material Identification (PMI) on request.

Part Numbers

Type	K–Factor (Metric) Tol. ± 5%	K–Factor (US) Tol. ± 5%	Thread (Male)	Spray Angle	Brass	Nickel Aluminium Bronze	St. Steel SS316	St. Steel SMO	Titanium
C	26	1.81	1/2" NPT	80°	D3102610N	D3102616N	D3102620N	D3102609N	D3102617N
L	40	2.77	1" NPT	55°	D3104010N	D3104016N	D3104020N	D3104009N	D3104017N
D	49	3.41	1" NPT	65°	D3104910N	D3104916N	D3104920N	D3104909N	D3104917N
E	65	4.52	1" NPT	80°	D3106510N	D3106516N	D3106520N	D3106509N	D3106517N
F	89	6.15	1" NPT	85°	D3108910N	D3108916N	D3108920N	D3108909N	D3108917N
G	104	7.17	1" NPT	90°	D3110410N	D3110416N	D3110420N	D3110409N	D3110417N
WM	21	1.46	1" NPT	115°	D31W02110N	D31W02116N	D31W02120N	D31W02109N	D31W02117N
WL	26	1.81	1" NPT	115°	D31W02610N	D31W02616N	D31W02620N	D31W02609N	D31W02617N
WD	47	3.27	1" NPT	120°	D31W04710N	D31W04716N	D31W04720N	D31W04709N	D31W04717N
WE	57	3.97	1" NPT	125°	D31W05710N	D31W05716N	D31W05720N	D31W05709N	D31W05717N
WF	78	5.43	1" NPT	115°	D31W07810N	D31W07816N	D31W07820N	D31W07809N	D31W07817N

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HIGH VELOCITY
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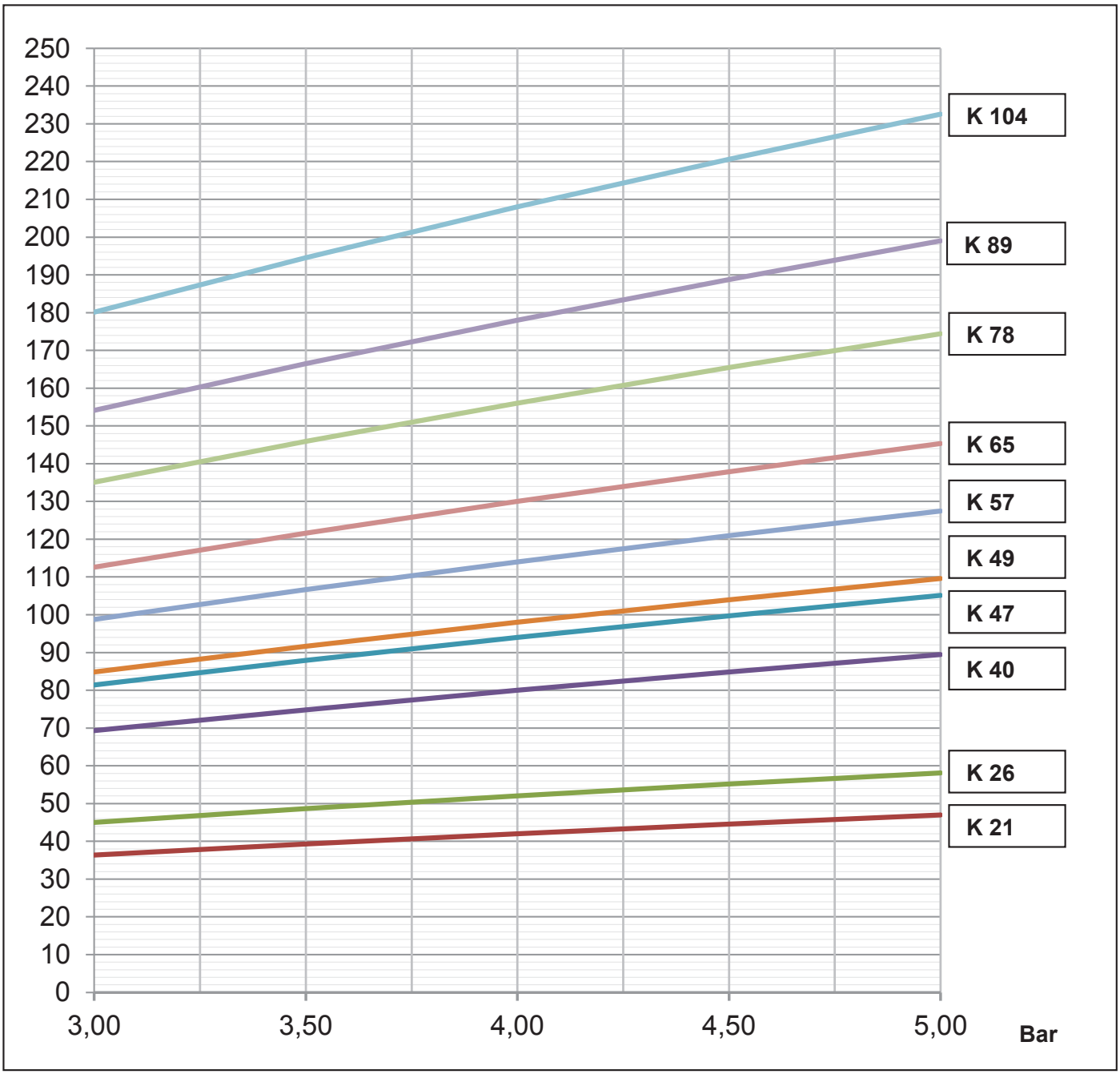
Pressure / Flow



The pressure / flow relation is calculated based on the formula: **Q = K x √P**

Q = flow (l/min)
K = nozzle K-factor (discharge coefficient)
P = water pressure at nozzle (Barg)

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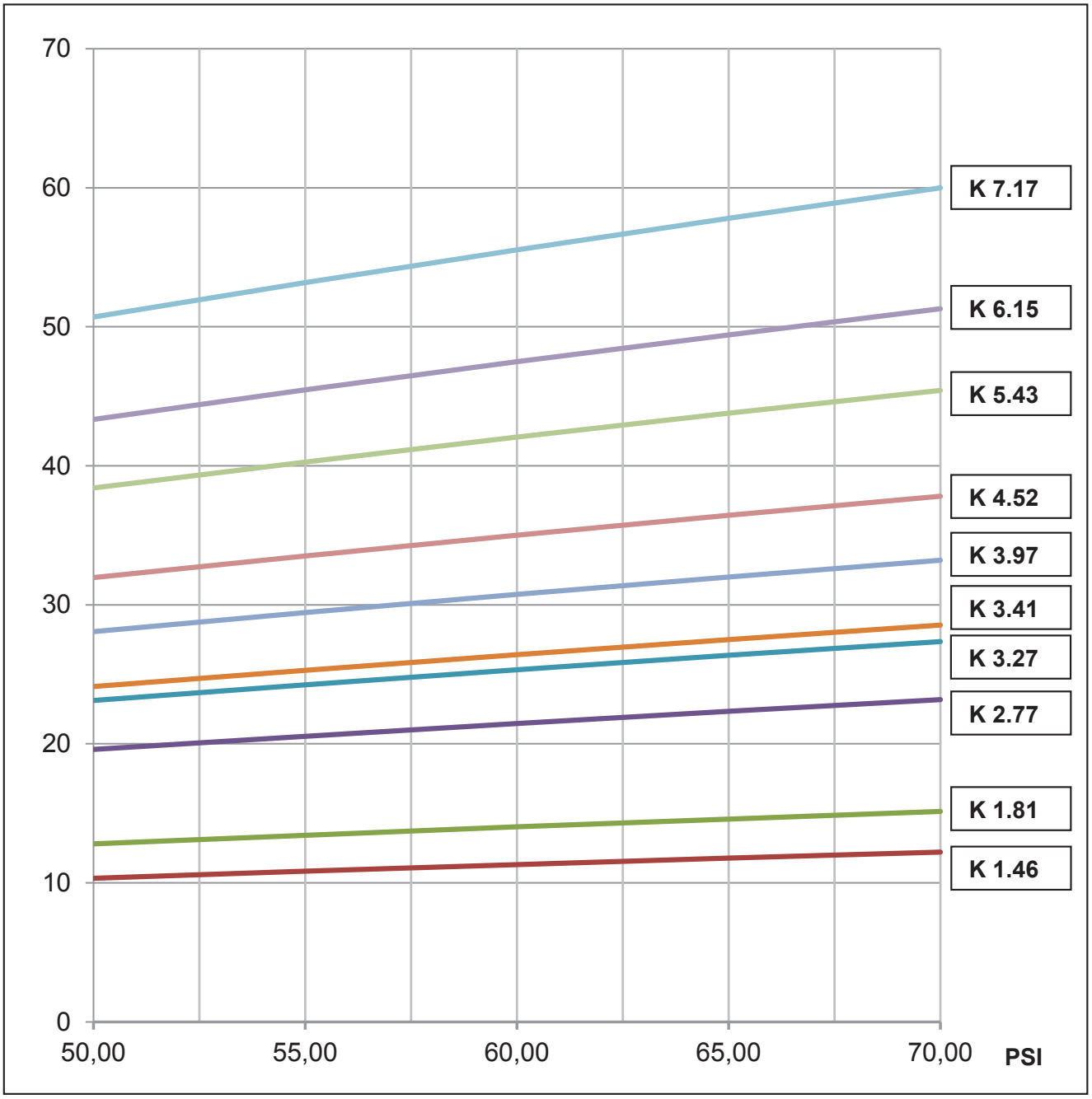
Pressure / Flow (U.S.)



The pressure / flow relation is calculated based on the formula: **Q = K x √P**

Q = flow (US gal/min)
K = nozzle K-factor (discharge coefficient)
P = water pressure at nozzle (PSI)

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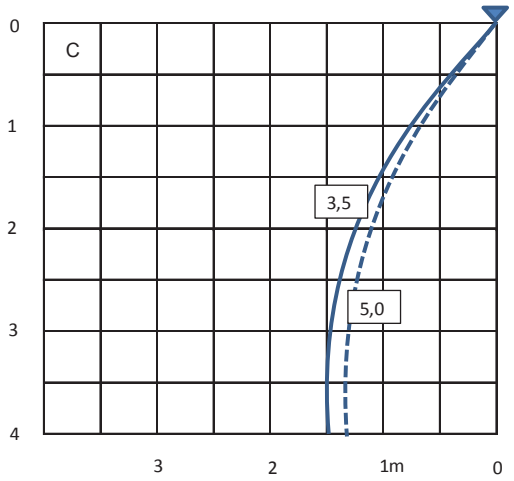
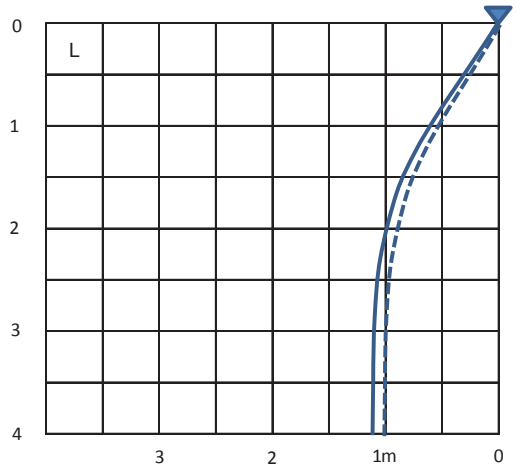
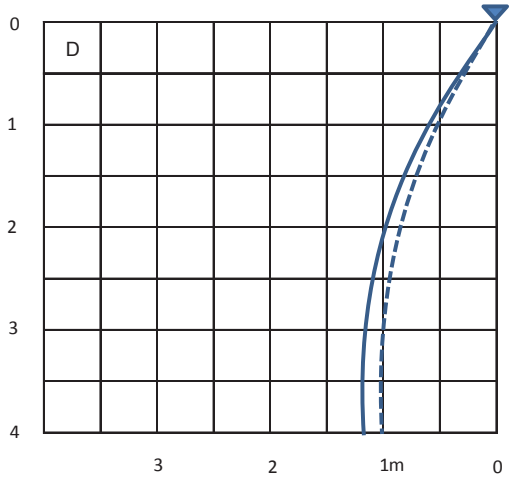
Type C – K26 (1.81 U.S.)



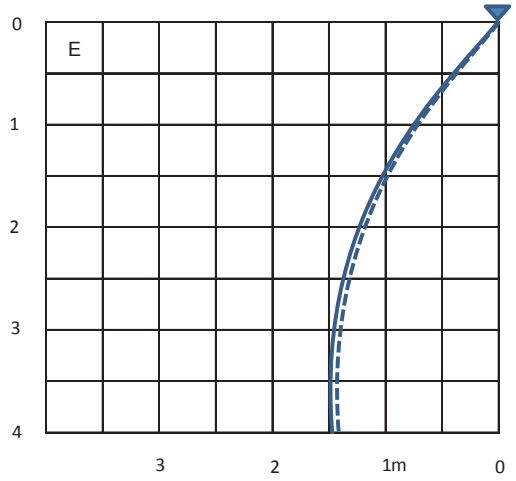
Type L – K40 (2.77 U.S.)



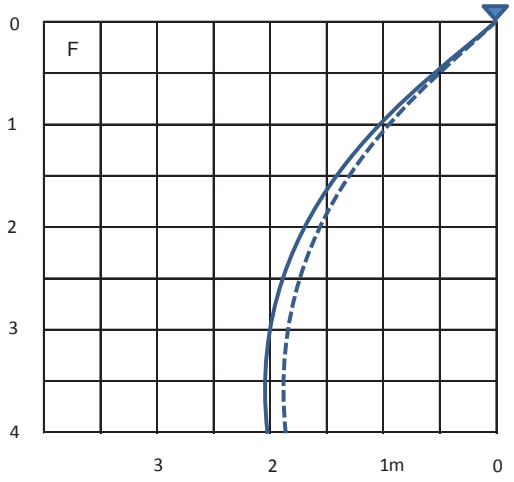
Type D – K49 (3.41 U.S.)



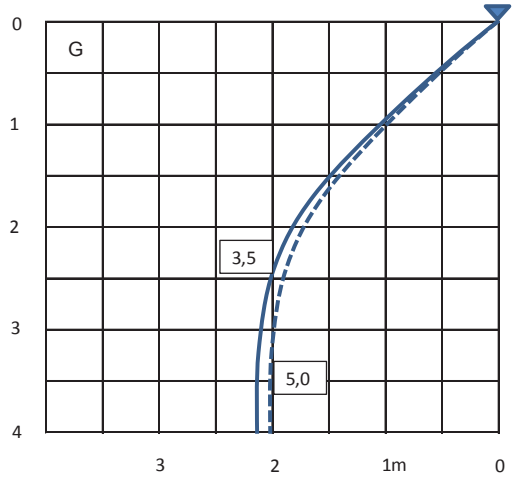
Type E – K65 (4.52 U.S)



Type F – K89 (6.15 U.S)



Type G - K104 (7.17 U.S)



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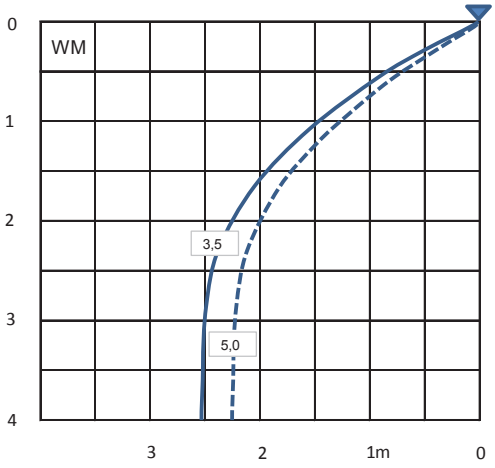
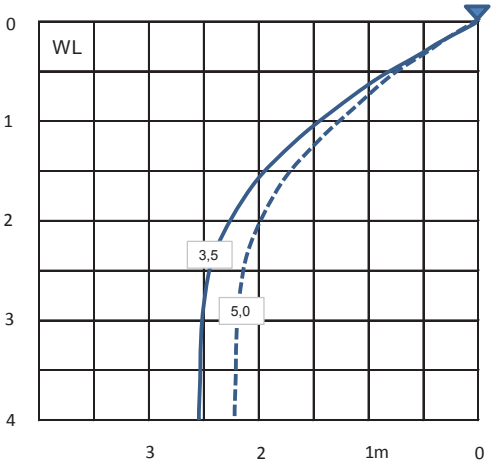
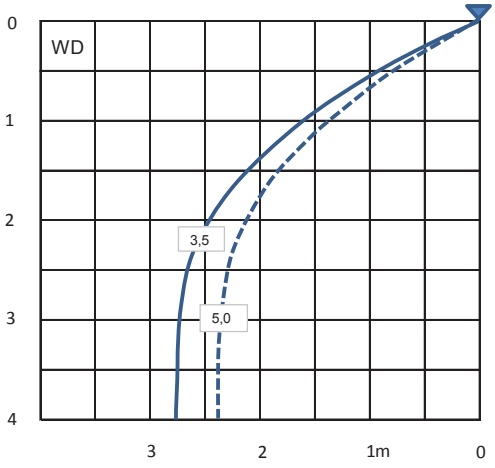
Type WM – K21 (1.46 U.S.)



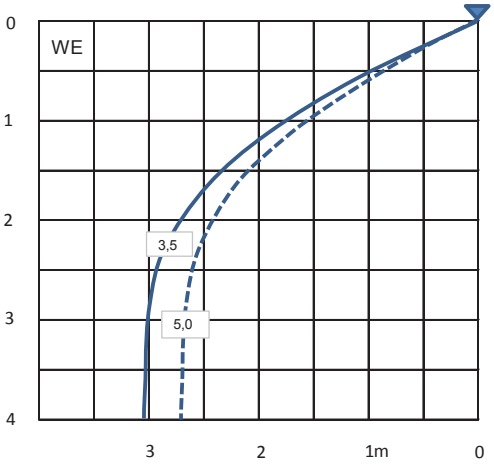
Type WL – K26 (1.81 U.S.)



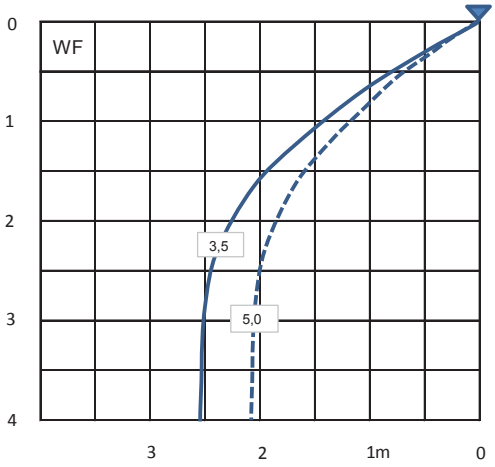
Type WD – K47 (3.27 U.S.)



Type WE– K57 (3.97 U.S.)



Type WF – K78 (5.43 U.S.)



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